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**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

Patent Application of: Robert Neal Goman et al.  
Title: SMART CARD PERSONALIZATION IN A MULTISTATION ENVIRONMENT  
Attorney Docket No.: 457.010US1

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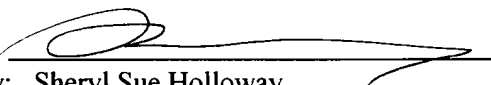
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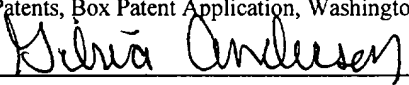
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given card application and includes application program code and variables. The security data prevents fraudulent use of the card and is usually provided in the form of “secure keys.” Printed data, such as a logo, bar codes, and various types of numerical information, are placed on the surface of the card. Some or all of the same data can also be embossed on the surface. Optical technology also can be employed to make part or all of the surface of the card into a storage medium with data accessible by an appropriate optical reader.

Smart cards are also programmed with information specific to an individual cardholder through a process called “personalization.” The personalization information for a smart card is similar to the personalization information currently contained on non-smart cards, such as the cardholder’s name, account number, card expiration date, and a photograph. Because of its increased storage capacity, the chip in a smart card can contain additional data beyond the basic information on the standard transaction card including a graphical representation of the individual’s signature, data defining the types of service the cardholder is entitled to, and account limits for those services.

Current systems from performing smart card initialization and/or personalization include a controller or a personal computer which is connected to a personalization station. All of the smart card programming data required for the personalization process is sent from the controller or personal computer to the personalization station which programs the smart card. An application running on the personalization station controls the programming of the smart card. Many current personalization stations have a limited capacity to handle the increasingly sophisticated personalization process as the

size and functionality of smart card computer chips increase. Such limitations include the memory, processing capacity, and buffer size of the personalization stations.

In addition, personalization stations may require access to external resources which provide security services or access to card data. The external resources, particularly the security services, are expensive infrastructures to repeat for each personalization station. Also, communication between the personalization station and the external resource is limited by the speed of the communication link between them. In addition, the application development environment available on the personalization stations is often unique and lacking in development tools.

Therefore, there is a need for a personalization system which overcomes the limitations on memory capacity and processing flexibility of current personalization stations. There is also a need for a personalization system which can share external resources between multiple personalization stations.

### **Summary of the Invention**

The above-identified shortcomings as well as other shortcomings are addressed by the present invention, which will be understood by reading and studying the following specification. The invention is a computerized system for controlling programming of portable programmed data carriers across a plurality of personalization stations. The system includes a personalization server interface for acquiring services from one of more resources, transferring card information to one of the personalization stations and controlling the programming of the portable programmed data carrier. The

system also includes a personalization station interface for receiving the card information from the personalization server interface and for programming the portable programmed data carrier.

5 The invention also described is a method of controlling programming of portable programmed data carriers in a system having a plurality of programming stations. The method includes receiving one or more card objects from a card issuer management system. The card objects consist of information for programming the portable programmed data carriers. The method also includes receiving a programming request from the programming station and utilizing the card object to control the programming station as the programming station programs the portable programmed data carrier.

10 Alternatively, the invention described is a computerized system which includes a means for receiving one or more card objects from a card issuer management system. The computerized system also includes a means for receiving a programming request from the programming station and a means for utilizing the card object to control the programming station as the programming station programs the portable programmed data carrier.

15 The smart card personalization system uses a data structure comprising a data field representing a card object containing information for programming a portable programmed data carrier and an additional data field containing a unique card object identifier for identifying the card object.

20 Therefore, the smart card personalization system of the present invention shares external resources between multiple personalization stations. Other aspects and

advantages of the invention will become apparent by reference to the drawings and by reading the following detailed description.

### **Brief Description of the Drawings**

- 5      Figure 1      is a block diagram representing an embodiment of a smart card issuing process that incorporates a smart card personalization server of the present invention.
- Figure 2      is a functional block diagram of input and output connections for the embodiment of the smart personalization server of shown in Figure 1.
- 10     Figure 3      is a block diagram showing one embodiment of the smart card personalization software of the present invention.
- Figure 4      is a high level flow chart for one embodiment of software which implements the functions of the smart card personalization server.

### **Description of the Embodiments**

15                    In the following detailed description of the embodiments, reference is made to the accompanying drawings which form a part hereof, and in which is shown by way of illustration specific embodiments in which the invention may be practiced. These embodiments are described in sufficient detail to enable those skilled in the art to

20      practice the invention, and it is to be understood that other embodiments may be utilized and that structural, logical and electrical changes may be made without departing from the spirit and scope of the present inventions. The following detailed description is,

therefore, not to be taken in a limiting sense, and the scope of the present inventions is defined only by the appended claims.

The leading digit(s) of reference numbers appearing in the Figures usually corresponds to the Figure number, with the exception that identical components which appear in multiple figures are identified by the same reference numbers.

The system of the present invention utilizes a personalization server to control smart card personalization in an environment having a plurality of personalization stations. The personalization server provides an interface to a plurality of card personalization stations and to external computing or data resources which normally are not directly available to the card personalization stations or which are not cost efficient to replicate at each card personalization station.

The detailed description of this invention is divided into four sections. The first section provides an overview of one embodiment of a system for issuing smart cards which incorporates a smart card personalization server of the present invention. The second section describes the functional specifications for the software components of the example embodiment of the smart card personalization system. The third section illustrates an example communication sequence between personalization station interface software and personalization server software for a smart card personalization process. The fourth section is a conclusion which includes a summary of the advantages of the present invention.

**Smart Card Personalization System Overview.** Figure 1 illustrates components of a smart card issuing process that incorporates one embodiment of the

smart card personalization server of the present invention. The smart card personalization server 100 receives card objects from a card issuer management system 150. A smart card personalization controller 120 receives, from the card issuer management system 150, a card object identifier for each one of the card objects passed to the smart card personalization server 100. The smart card personalization controller 120 routes each one of the card object identifiers to one of a plurality of personalization stations 130. Each personalization station 130 uses the card object identifier to request data and services from the smart card personalization server 100 in order to personalize a smart card 160.

The card issuer management system 150 manages the cardholder data and determines the type of card to issue, the card applications to embed in the card, and what personalization equipment to use to issue the card for a particular cardholder.

The smart card personalization server 100 is illustrated in Figure 1 as a computer executing personalization server software as further described below. The personalization server software executes under an operating system such as Unix, Windows 95®, or Windows NT®, and on industry-standard workstation and/or personal computer hardware. As described below, the smart card personalization server 100 provides an interface to card personalization stations 130 and to external computing or data resources 180.

The server 100 controls card printers, embossing devices, and integrated or add-on smart card interface devices collectively represented in Figure 1 as a plurality of personalization stations 130. Personalization stations 130 also represent such devices as

large volume card printer/embossers, small volume card printer/embossers, automatic teller machines (ATMs), point of sale terminals, unattended kiosks, personal computers, network computers, and on-line telecommunication devices. The physical connection between the devices and the smart card personalization server 100 varies according to the manufacturer and model of the device. Common industry standard connections include serial RS232, SCSI (Small Computer System Interface), Ethernet, and serial TTL (Transistor-Transistor Logic). In addition, some devices require a proprietary bus connection.

The connections between the smart card personalization server 100 and the card management system 150 and the stations 130 can also be implemented through standard local area networks, wide area networks, dedicated phone lines, or other remote communication infrastructure used to transfer data. Alternate connections will be apparent to those skilled in the art and are within the scope of the invention.

Figure 2 is a block diagram of one embodiment of the smart card personalization system illustrating the logical input and output connections for the smart card personalization server 100. The cardholder data 202 input and maintained by the card issuing organization contains information about each individual cardholder, such as name, account number, card expiration date, and applicable services. The card issuer management system 150 assembles the data necessary for each card personalization job. The data for each job can be stored in a card object data store, such as a database, with each card object 208 accessible by a unique card object identifier. A job can be, for example, a logical grouping of similar card objects.



The card objects 208 contain, for example but not with limitation, data and commands for magnetic stripe encoding, embossing, printing, packaging and smart card personalization. An example card object is shown below.

#### Card Object

EMB= "123456789", "Your Name", "1/1/1999"

ENC=%B123456789^ Y/Name^01011999?;123456789=01011999?

PIC=www.photos.com/YourName

SCRD=this\_unique\_card\_object\_identifier

The example card object begins with an emboss instruction "EMB" followed by the corresponding cardholder data to be embossed on the card. The second line in the example card object shown above is an encode instruction "ENC" followed by the corresponding data to be corresponding cardholder data to be encoded on the magnetic strip of the card. The third line in the example card object is an instruction to print a picture on the card "PIC" followed by the location of the cardholder's picture. The fourth line in the example card object is smart card portion of the card object "SCRD". The smart card portion of the card object 208 consists of the unique card object identifier.

The card issuer management system 150 passes the card object 208 to the smart card personalization server 100. The smart card personalization server 100 expects the personalization data to be in a particular format. Because the card object 208 is in a

format defined by the card issuer that often differs from the format(s) expected by the server 100, the card object 208 is translated by the server 100 when necessary. One method of translating the card object is described in U.S. Patent Application serial number 08/755,459 entitled "System and Apparatus for Smart Card Personalization",  
5 filed on November 22, 1996.

The smart card personalization server 100 provides an interface to external security services 204 and additional data sources 206 as needed to perform a smart card personalization job. The software program for the smart card personalization server 100 can be coupled to the data sources 206 through standard data query commands that  
10 provide access to the data stored in the data sources. The communication protocols between the software program for the smart card personalization server 100 and the external security services 204 and the data sources 206 vary depending upon the underlying data management system or security system employed.

The smart card personalization server 100 also provides an interface to each one  
15 of a plurality of card personalization stations 130. The smart card personalization controller 120 passes a card object identifier to one of the waiting personalization stations 130. The personalization station 130 presents the card object identifier to the server 100 in order to initiate access to the data services, security services or support services needed to complete the smart card personalization. Upon receiving the card  
20 object identifier from the personalization station 130, the smart card personalization server 100 translates the card object indicated by the card object identifier. The translation of the card object by the smart card personalization server 100 results in a

sequence of commands and/or data which are passed to the personalization station 130. The personalization station 130 passes the commands and data received from the server 100 directly to the smart card 160. An example process demonstrating how the server 100 controls the actual card programming is described below.

5           **Personalization Software Specifications.** Figure 3 is a block diagram showing one embodiment of the smart card personalization server 100 of Figure 2. The system of the present invention utilizes the personalization server 100 to control smart card personalization in an environment having a plurality of personalization stations 130 coupled to the personalization server 100. The personalization server 100 provides an  
10 interface to card personalization stations 130 and to external computing or data resources 204, 206 as shown in Figure 2.

          An application executing on a card issuer management system 150 prepares a card object 303 and assigns a card object identifier to each object. Information regarding the card objects is archived in a card object database 302 until called upon by  
15 the personalization server 100 to personalize a smart card.

          The personalization environment of the present invention comprises two complimentary software components. The first is personalization station interface software 304 which executes in a processor of the personalization station 130. The second is personalization server software 305 executing in a processor in the  
20 personalization server 100 which processes the personalization card objects and utilizes both local and external resources.

          A initialization process 306 initiates a personalization job by initiating the

personalization server 100 and optionally sending data, such as embossing or magnetic stripe encoding data, to the personalization station 130. The personalization server software 305 serves multiple card personalization processes 308. Each card personalization process 308 represents a personalization job occurring at one of the personalization stations 130. Each card personalization process 308 is logically linked to one of the personalization stations 130.

The personalization station interface software 304 presents the unique card object identifier to the personalization server software 305 to initiate access to services available through the server software 305. The personalization server software 305 obtains all of the necessary job information as well as the data elements to be used in personalization of the smart card. The personalization station interface software 304 performs the card personalization utilizing the services available to it through the personalization server software 305 as required until personalization is complete. At completion of the job, the personalization station interface software 304 is notified by the server software 305 of completion.

The services provided by the server software 305 include data services 312, security services 310 and support services 314. The data services 312 perform the acquisition of data for each personalization job and include any commonly available means of accessing data. The data services 312 retrieve data archived in the card object data base 302 on the card issuer management system 150 as well as from additional external data sources as shown in Figure 2. The data can be in the form of files, databases, or data structures for example.

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The security services 310 interface with a variety of different external sources which provide security functions. The security functions provided by the external sources include any commonly available means of securing information or limiting access to smart card chips until a required security condition is met. An example  
5 security function utilizes one or more "secure keys" that are programmed into the chip to prevent fraudulent use of the card. The appropriate secure key data is obtained by the smart card personalization server software 305 from secure key records maintained by the card issuer or an external security source and then transferred to the personalization station interface software 304. The security services 310 also provide security functions  
10 that can be used, for example, to ensure the integrity and secrecy of data during the transmission of data to and from the personalization station 130.

The support services 314 perform processing tasks that in prior systems were performed by the personalization station 130 or were unable to be performed at all due to the limitations of the personalization stations. The support services 314 include any  
15 commonly used functions that can be shared between processes such as data conversions and validations for example. An example support service 314 is year 2000 date validation processing. An additional example of a support service 314 is formatting a ten digit string of numbers representing a telephone number so that the area code is in parentheses.

20 The personalization server software 305 operates on a computer system which includes one or more high speed processors, data communications capability compatible with the target personalization stations, access to external resources such as security or

file servers and a multitasking operating system. The smart card personalization processes 308, identified as components of the personalization server software 305, utilize their own virtual memory and share resources as appropriate through threading or other common techniques well known to one skilled in the art.

5           In summary, the personalization server software moves the processing tasks for initialization and personalization of smart cards from the personalization station to the personalization server. The personalization station interface software is responsible for servicing individual commands from the personalization server software.

**Personalization Software Communication Process.** Figure 4 illustrates the  
10       communication sequence between the personalization station interface software 304 and the personalization server software 305 in order to complete personalization of a smart card. The smart card personalization process begins at stage 402 when the personalization station interface software 304 receives a unique card object identifier from the smart card personalization controller as shown in Figure 2. At stage 404, the  
15       personalization station interface software 304 requests the commands and data necessary to personalize the card by passing the card object identifier to the server software 305. Upon receiving the card object identifier, the server software 305 starts a personalization session with the personalization station interface software 304 at stage 406.

20           Based on the card object identifier, the server software 305 retrieves and sends the data and commands unique to the card being personalized to the personalization station interface software 304 at stage 408. The data and commands are retrieved

locally from the smart card personalization server or from additional external data sources as shown in Figure 2 including, for example, the card issuer management system 150.

5 In one embodiment, the personalization station interface software 304 is idle at stage 410 until it receives the commands and data from the personalization server software 305. Upon receiving the commands and data, the personalization station interface software 304 passes the commands and data directly to the smart card and returns data and/or status signals to the server software 305 as an acknowledgement at stage 412. An example of the data returned by the personalization station interface software 304 is a serial number unique to the card and a random number. The data in such case can be used as part of a function provided by a security service such as an authentication algorithm. At stage 414, the server software 305 processes the status signals and/or data returned by the personalization station interface software 304.

10 For example, at stage 408 the server software 305 sends a “select” command. The personalization station interface software 304 is idle at stage 410 until it receives the “select” command from the server. At stage 412, the personalization station interface software 304 passes the “select” command on to the smart card and returns a status signal as an acknowledgement to the server software 305. After receiving the acknowledgment at stage 414, the server software 305 sends a “write” command and associated data to the personalization station interface software 304 at stage 408. The personalization station interface software 304 is idle at stage 410 until it receives the “write” command from the server software 305. At stage 412, the personalization

station passes the "select" command on to the smart card and returns a status signal as an acknowledgement to the server software 305. The loop from stage 408 to stage 410 to stage 412 to stage 414 continues until the personalization is complete.

5       Upon completion of the personalization of the smart card, the server software 305 sends a "format complete" command to the personalization station interface software 304 at stage 416. The personalization station interface software 304 is idle at stage 418 until it receives the "format complete" command from the server software 305. At stage 420 the personalization station interface software 304 sends an acknowledgement of the "format complete" command to the server software 305 and to  
10       the smart card. The personalization process is complete at stage 422 when the server software 305 receives the acknowledgement.

**Conclusion.** In summary, the system of the present invention utilizes a personalization server to control smart card personalization in an environment having a plurality of personalization stations. The personalization server provides an interface to  
15       a plurality of card personalization stations and to external computing or data resources which normally are not directly available to the card personalization stations or which are not cost efficient to replicate at each card personalization station. The personalization server off-loads the processing of tasks for initialization and personalization of smart cards from the personalization station to the personalization  
20       server. The personalization station is responsible for servicing individual commands from the personalization server.

      An advantage of the present invention is that the personalization server can



support multiple active personalization station sessions. An additional advantage is that the programming logic required in the personalization station is reduced to that of managing data transfers.

5 Other mechanisms for control of the smart card personalization process will be apparent to those skilled in the art. It is to be understood that the above description is intended to be illustrative, and not restrictive. Many other embodiments will be apparent to those of skill in the art upon reviewing the above description. The scope of the invention should, therefore, be determined with reference to the appended claims, along with the full scope of equivalents to which such claims are entitled.

10

What is claimed is:

1. A method of controlling programming of portable programmed data carriers in a system having a plurality of programming stations, the method comprising the steps of:  
receiving a card object from a card issuer management system, wherein the card object consists of information for programming the portable programmed data carriers;  
receiving a programming request from the programming station; and  
utilizing the card object to control the programming station as the programming station programs the portable programmed data carrier.
2. The method of claim 1, further comprising the step of acquiring data from a data source.
3. The method of claim 2, wherein the data source is the card issuer management system.
4. The method of claim 1, further comprising the step of acquiring security services from a security source.
5. The method of claim 1, further comprising the step of providing support services.

6. The method of claim 1, wherein the step of receiving a programming request comprises the steps of:

receiving a card object identifier; and  
associating the card object identifier with the card object.

7. The method of claim 2, further comprising the step of acquiring security services from a security source.

8. The method of claim 7, further comprising the step of providing support services.

9. The method of claim 8, wherein the step of receiving a programming request comprises the steps of:

receiving a card object identifier; and  
associating the card object with the card object identifier.

10. A computerized system for controlling programming of portable programmed data carriers across a plurality of personalization stations, the system comprising:

a personalization server interface for acquiring services from one of more resources, transferring card information to one of the personalization stations, and controlling the programming of the portable programmed data carrier;

a personalization station interface for receiving the card information from the

personalization server interface and for programming the portable programmed data carrier.

11. The computerized system of claim 10, wherein the services acquired by the personalization server interface are data services.

12. The computerized system of claim 10, wherein the services acquired by the personalization server interface are security services.

13. The computerized system of claim 10, wherein the services acquired by the personalization server interface are support services.

14. The computerized system of claim 10, further comprising a controller for receiving a card object identifier and for routing the card object identifier to one of the personalization stations.

15. A computerized system for controlling programming of portable programmed data carriers across a plurality of personalization stations, the system comprising:

a means for receiving one or more card objects from a card issuer management system, wherein the card objects comprise information for programming the portable programmed data carriers;

a means for receiving a programming request from the programming station; and

a means for utilizing the card object to control the programming station as the programming station programs the portable programmed data carrier.

16. The computerized system of claim 15, further comprising a means for acquiring security services from a security source.

17. The computerized system of claim 15, further comprising a means for acquiring data from a data source.

18. The computerized system of claim 17, wherein the data source is the card issuer management system.

19. The computerized system of claim 15, further comprising a means for providing support services.

20. The computerized system of claim 15, wherein the programming request comprises a unique card object identifier.

21. A computer-readable medium having computer-executable instructions for performing the steps comprising:

receiving one or more card objects from a card issuer management system,  
wherein the card objects consist of information for programming the portable

programmed data carriers;

receiving a programming request from the programming station; and

utilizing the card object to control the programming station as the programming station programs the portable programmed data carrier.

22. The computer-readable medium of claim 21, having further computer-executable instructions for performing the step of acquiring security services from a security source.

23. The computer-readable medium of claim 21, having further computer-executable instructions for performing the step of acquiring data from a data source.

24. The computer-readable medium of claim 23, wherein the data source is the card issuer management system.

25. The computer-readable medium of claim 21, having further computer-executable instructions for performing the step of providing support services.

26. A computer readable medium having stored thereon a data structure comprising:  
a first data field containing data representing a card object for programming a portable programmed data carrier; and  
a second data field containing data representing a unique card object identifier

for identifying the card object represented by the first data field.

27. A system for issuing portable programmed data carriers comprising:

a plurality of card objects identified by a like plurality of card object identifiers;

a plurality of personalization stations for receiving the card object identifiers and for programming the portable programmed data carriers using information contained in the card object identified by the card object identifier;

a controller for providing to each personalization station the card object identifier; and

a personalization server for controlling the programming of a portable programmed data carrier in response to a request from one of the personalization stations, wherein the personalization server translates the card object into commands and data and transfers the commands and data to the personalization stations making the request.

28. The system of claim 27, wherein the personalization server acquire services from one or more resources in response to a request from one of the personalization stations.


## Abstract

A smart card personalization system provides an interface to smart card personalization stations and to external computing or data resources which normally are not available directly to personalization station. A card issuer management systems prepares card objects and assigns a unique card object identifier. A smart card personalization server receives the card objects from the card issuer management system. A smart card personalization controller receives the unique card object identifiers and routes the card object identifiers to waiting personalization stations. The personalization stations use the card object identifier to request data and services from the smart card personalization server in order to personalize the smart card. The services provided by the smart card personalization server include data services, security services and support services. The smart card personalization server supports multiple active personalization station sessions.

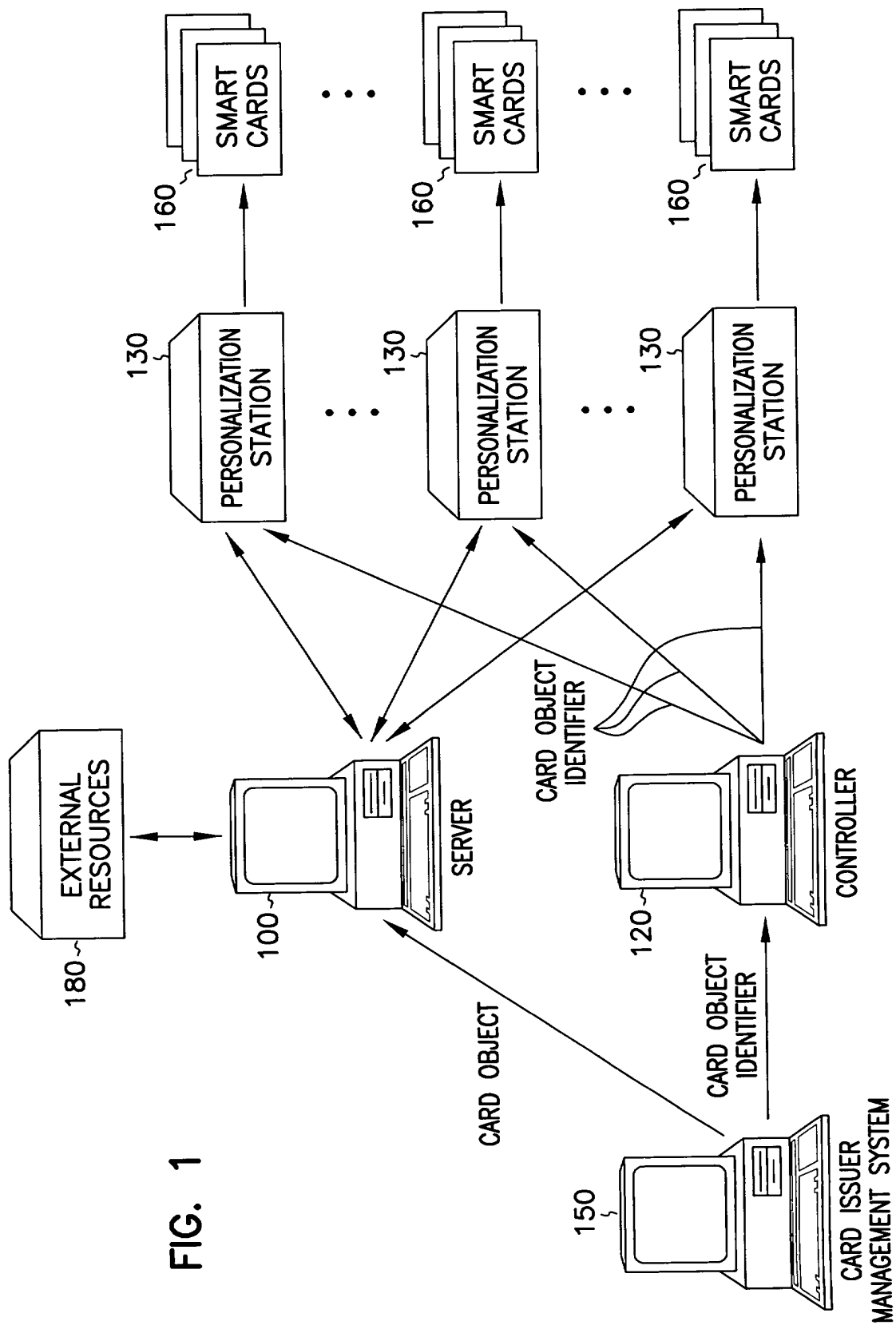
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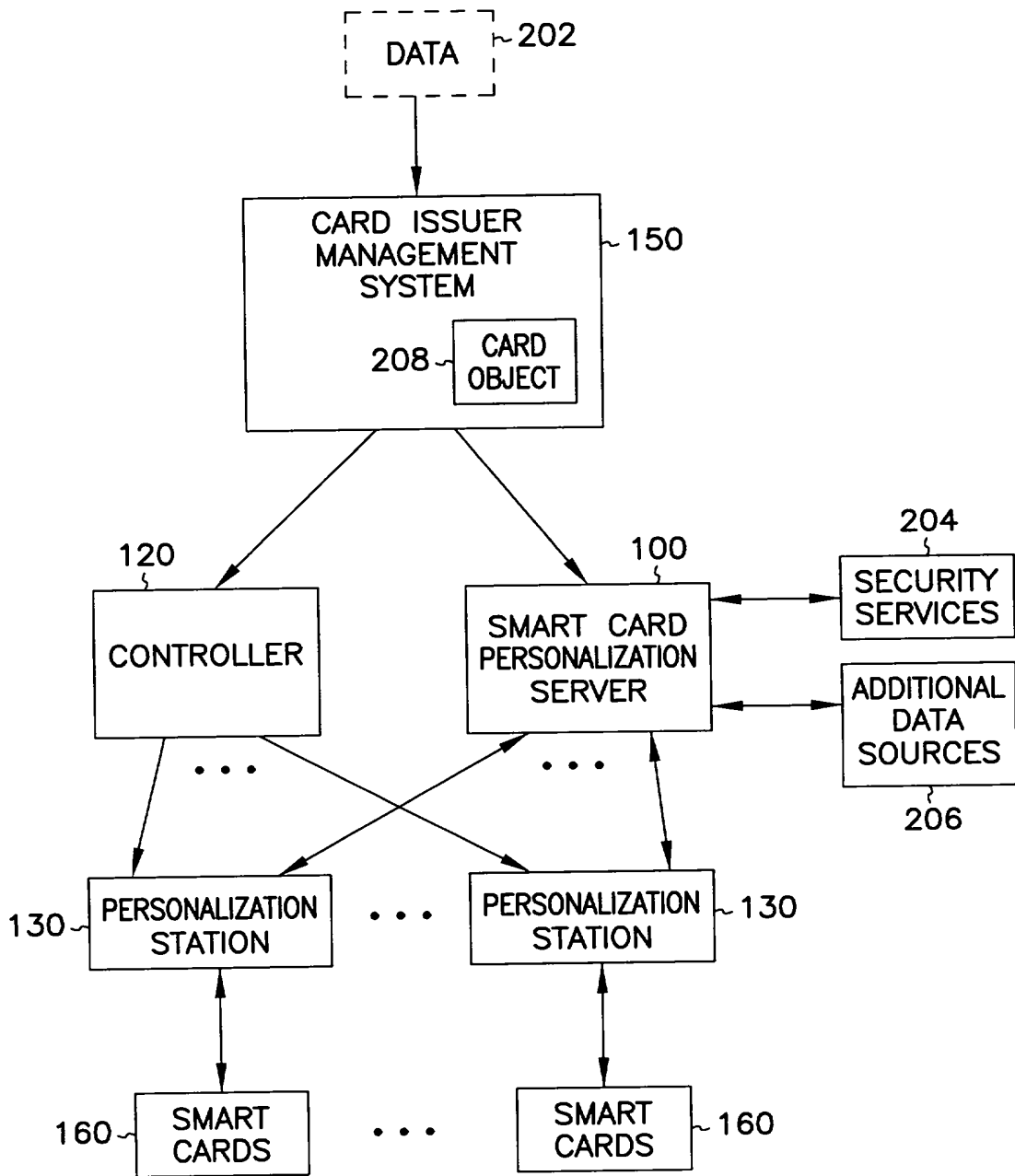
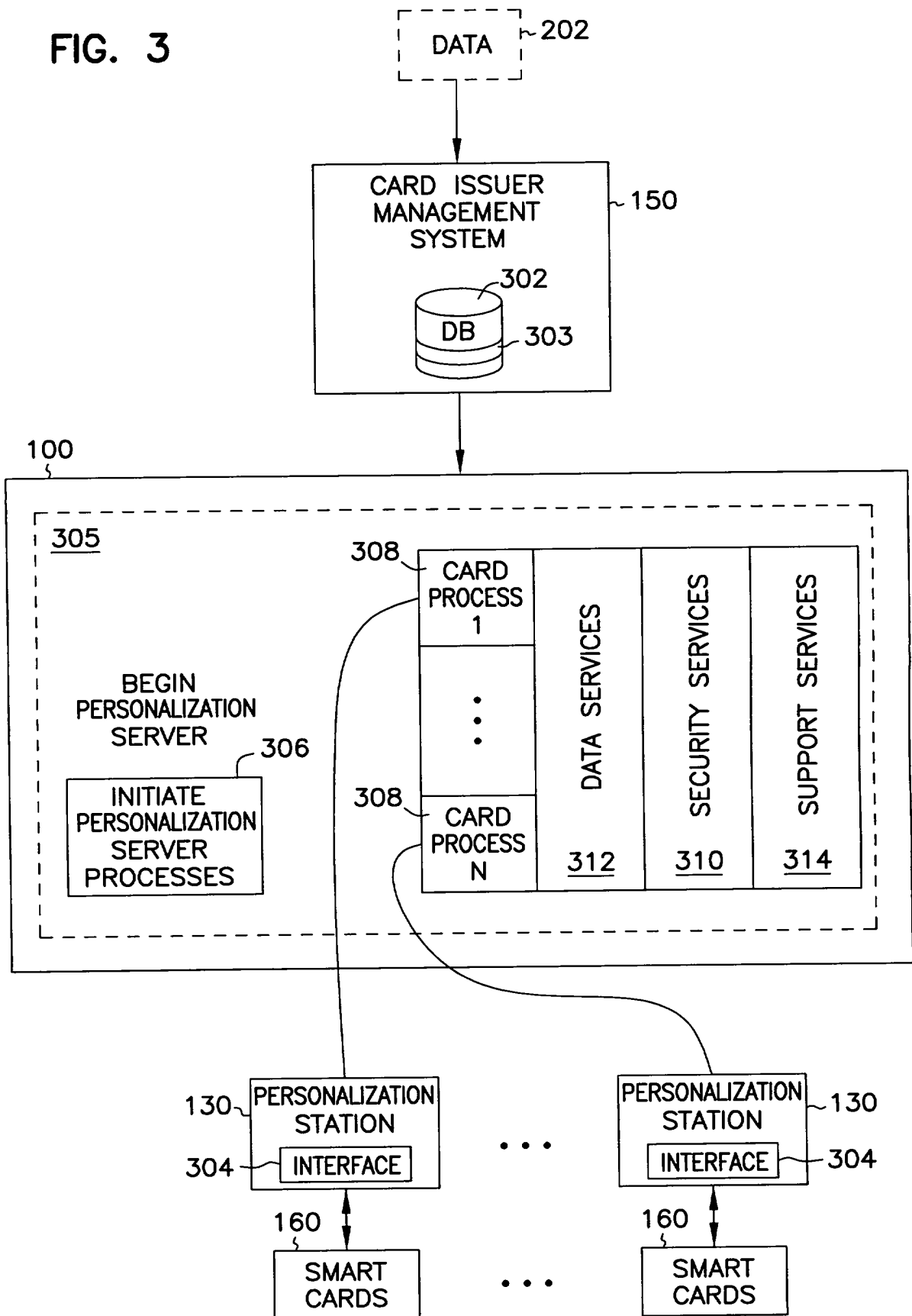


FIG. 2

FIG. 3



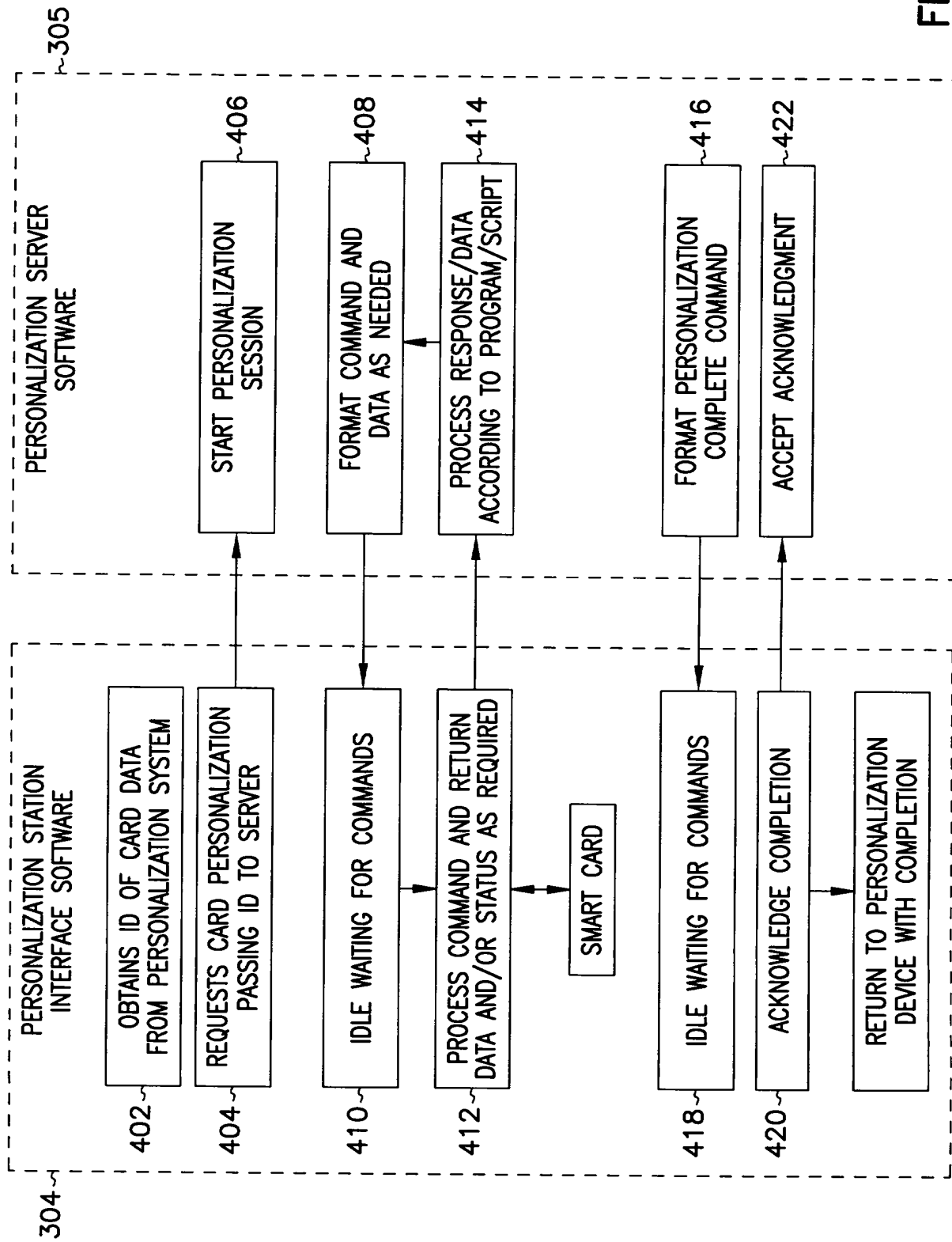


FIG. 4

## SMALL BUSINESS

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ADDRESS OF CONCERN: 5909 Baker Road  
Suite 580  
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I hereby declare that the above identified small business concern qualifies as a small business concern as defined in 13 C.F.R. 121.3-18, and reproduced in 37 C.F.R. 1.9(d), for purposes of paying reduced fees under Section 41(a) and (b) of Title 35, United States Code, in that the number of employees of the concern, including those of its affiliates, does not exceed 500 persons. For purposes of this statement, (1) the number of employees of the business concern is the average over the previous fiscal year of the concern of the persons employed on a full-time, part-time or temporary basis during each of the pay periods of the fiscal year, and (2) concerns are affiliates of each other when either, directly or indirectly, one concern controls or has the power to control the other, or a third party or parties controls or has the power to control both.

I hereby declare that rights under contract or law have been conveyed to and remain with the small business concern identified above with regard to the invention, entitled SMART CARD PERSONALIZATION IN A MULTISTATION ENVIRONMENT by inventors Robert Neal Goman, Denis C. Burand and Thomas L. Younger described in the specification filed herewith.

If the rights held by the above-identified small business concern are not exclusive, each individual, concern or organization having rights to the invention is listed below\* and no rights to the invention are held by any person, other than the inventor, who could not qualify as an independent inventor under 37 C.F.R. 1.9(c) or by any concern which would not qualify as a small business concern under 37 C.F.R. 1.9(d) or a nonprofit organization under 37 C.F.R. 1.9(e). \*NOTE: Separate verified statements are required from each named person, concern or organization having rights to the invention averring to their status as small entities. (37 C.F.R. 1.27)

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I acknowledge the duty to file, in this application or patent, notification of any change in status resulting in loss of entitlement to small entity status prior to paying, or at the time of paying, the earliest of the issue fee or any maintenance fee due after the date on which status as a small entity is no longer appropriate. (37 C.F.R. 1.28(b))

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application, any patent issuing thereof, or any patent to which this verified statement is directed.

NAME David R. Tushie

TITLE President

ADDRESS UBIQ Inc., Suite 580, 5909 Baker Road, Minneapolis, MN 55345

SIGNATURE David R. Tushie DATE May 11, 1998

# United States Patent Application

## COMBINED DECLARATION AND POWER OF ATTORNEY

As a below named inventor I hereby declare that: my residence, post office address and citizenship are as stated below next to my name; that

I verily believe I am the original, first and joint inventor of the subject matter which is claimed and for which a patent is sought on the invention entitled: SMART CARD PERSONALIZATION IN A MULTISTATION ENVIRONMENT.

The specification of which is attached hereto.

I hereby state that I have reviewed and understand the contents of the above-identified specification, including the claims, as amended by any amendment referred to above.

I acknowledge the duty to disclose information which is material to the patentability of this application in accordance with Title 37, Code of Federal Regulations, § 1.56 (see page 3 attached hereto).

I hereby claim foreign priority benefits under Title 35, United States Code, §119/365 of any foreign application(s) for patent or inventor's certificate listed below and have also identified below any foreign application for patent or inventor's certificate having a filing date before that of the application on the basis of which priority is claimed:

**No such applications have been filed.**

I hereby claim the benefit under 35 U.S.C. § 119(e) of any United States provisional application(s) listed below.

**No such applications have been filed.**

I hereby claim the benefit under Title 35, United States Code, § 120/365 of any United States and PCT international application(s) listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States application in the manner provided by the first paragraph of Title 35, United States Code, § 112, I acknowledge the duty to disclose material information as defined in Title 37, Code of Federal Regulations, § 1.56(a) which occurred between the filing date of the prior application and the national or PCT international filing date of this application.

**No such applications have been filed.**

I hereby appoint the following attorney(s) and/or patent agent(s) to prosecute this application and to transact all business in the Patent and Trademark Office connected herewith:

Anglin, J. Michael	Reg. No. 24,916	Forrest, Bradley A.	Reg. No. 30,837	Lundberg, Steven W	Reg. No. 30,568
Arora, Suneel	Reg. No. P-42,267	Hale, Jeffrey D.	Reg. No. 40,012	Madrid, Andres N	Reg. No. 40,710
Bernkopf, Paul A.	Reg. No. P-41,615	Harris, Robert J.	Reg. No. 37,346	McCrackin, Ann M.	Reg. No. P-42,858
Bianchi, Timothy E	Reg. No. 39,610	Hofmann, Rudolph P., Jr	Reg. No. 38,187	Provence, David L.	Reg. No. P-43,022
Billion, Richard E.	Reg. No. 32,836	Holloway, Sheryl S	Reg. No. 37,850	Schwegman, Micheal L	Reg. No. 25,816
Brennan, Thomas F.	Reg. No. 35,075	Huebsch, Joseph C.	Reg. No. P-42,673	Simboli, Paul B.	Reg. No. 38,616
Brooks, Edward J., III	Reg. No. 40,925	Klima-Silberg, Catherine I.	Reg. No. 40,052	Slifer, Russell D.	Reg. No. 39,838
Clark, Barbara J	Reg. No. 38,107	Kluth, Daniel J.	Reg. No. 32,146	Taylor, Michael W.	Reg. No. P-43,182
Drake, Eduardo E.	Reg. No. 40,594	Leffert, Thomas W	Reg. No. 40,697	Terry, Kathleen R.	Reg. No. 31,884
Dryja, Michael A.	Reg. No. 39,662	Lemaire, Charles A	Reg. No. 36,198	Viksins, Ann S	Reg. No. 37,748
Embretson, Janet E.	Reg. No. 39,665	Litman, Mark A.	Reg. No. 26,390	Woessner, Warren D.	Reg. No. 30,440
Fogg, David N.	Reg. No. 35,138				

I hereby authorize them to act and rely on instructions from and communicate directly with the person/assignee/attorney/firm/organization/who/which first sends/sent this case to them and by whom/which I hereby declare that I have consented after full disclosure to be represented unless/until I instruct Schwegman, Lundberg, Woessner & Kluth, P.A. to the contrary.

Please direct all correspondence in this case to Schwegman, Lundberg, Woessner & Kluth, P.A. at the address indicated below:

P.O. Box 2938, Minneapolis, MN 55402  
Telephone No. (612)373-6900

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Full Name of joint inventor number 1 : Robert Neal Goman

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Signature: Robert Neal Goman  
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Date: 11 MAY 98

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Date: May 11 1998

Full Name of inventor:

Citizenship:

Residence:

Post Office Address:

Signature: \_\_\_\_\_

Date: \_\_\_\_\_

§ 1.56 Duty to disclose information material to patentability.

(a) A patent by its very nature is affected with a public interest. The public interest is best served, and the most effective patent examination occurs when, at the time an application is being examined, the Office is aware of and evaluates the teachings of all information material to patentability. Each individual associated with the filing and prosecution of a patent application has a duty of candor and good faith in dealing with the Office, which includes a duty to disclose to the Office all information known to that individual to be material to patentability as defined in this section. The duty to disclose information exists with respect to each pending claim until the claim is canceled or withdrawn from consideration, or the application becomes abandoned. Information material to the patentability of a claim that is canceled or withdrawn from consideration need not be submitted if the information is not material to the patentability of any claim remaining under consideration in the application. There is no duty to submit information which is not material to the patentability of any existing claim. The duty to disclose all information known to be material to patentability is deemed to be satisfied if all information known to be material to patentability of any claim issued in a patent was cited by the Office or submitted to the Office in the manner prescribed by §§ 1.97(b)-(d) and 1.98. However, no patent will be granted on an application in connection with which fraud on the Office was practiced or attempted or the duty of disclosure was violated through bad faith or intentional misconduct. The Office encourages applicants to carefully examine:

- (1) prior art cited in search reports of a foreign patent office in a counterpart application, and
- (2) the closest information over which individuals associated with the filing or prosecution of a patent application believe any pending claim patentably defines, to make sure that any material information contained therein is disclosed to the Office.

(b) Under this section, information is material to patentability when it is not cumulative to information already of record or being made of record in the application, and

- (1) It establishes, by itself or in combination with other information, a prima facie case of unpatentability of a claim; or
- (2) It refutes, or is inconsistent with, a position the applicant takes in:
  - (i) Opposing an argument of unpatentability relied on by the Office, or
  - (ii) Asserting an argument of patentability.

A prima facie case of unpatentability is established when the information compels a conclusion that a claim is unpatentable under the preponderance of evidence, burden-of-proof standard, giving each term in the claim its broadest reasonable construction consistent with the specification, and before any consideration is given to evidence which may be submitted in an attempt to establish a contrary conclusion of patentability.

(c) Individuals associated with the filing or prosecution of a patent application within the meaning of this section are:

- (1) Each inventor named in the application;
- (2) Each attorney or agent who prepares or prosecutes the application; and
- (3) Every other person who is substantively involved in the preparation or prosecution of the application and who is associated with the inventor, with the assignee or with anyone to whom there is an obligation to assign the application.

(d) Individuals other than the attorney, agent or inventor may comply with this section by disclosing information to the attorney, agent, or inventor.



# **Smart Card Personalization in a Multistation Environment**

## **Field of the Invention**

The present invention relates generally to data storage devices and more  
5 specifically to the control of smart card personalization in a multistation environment.

## **Background of the Invention**

Increasing numbers of organizations which issue transaction cards to their users,  
customers, or employees require cards tailored to meet the requirements of their  
10 particular service or application. These organizations also want the cards to contain  
data about the cardholder. Existing transaction cards encode such data in a magnetic  
stripe on the back of the card but the amount of data that can be held by a magnetic  
stripe is limited. A new type of transaction card embeds a microprocessor computer  
chip in the plastic of the card to greatly increase the card's data storage capacity.  
15 Additionally, sophisticated card applications specific to the card issuer can execute in  
certain varieties of the chips, and the chip may also contain a type of operating system.  
Transaction cards with embedded chips are referred to in the industry as portable  
programmed data carriers, more commonly called "smart cards." The chip in a smart  
card is generally programmed with initialization and/or personalization data at the same  
20 time as the surface of the card is being embossed and/or printed.

The initialization data comprises three major types of information: application  
data, security data, and printed data. The application data is common to all cards for a